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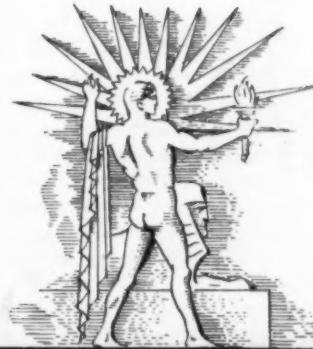
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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



August 13, 1938

Plenty of Hot Water

See Page 104

A SCIENCE SERVICE PUBLICATION

Do You Know?

In some bright-colored birds, the colors serve as war-paint to frighten enemies.

Annual growth rings in Oregon pine trees show that a 28-year drought was ending in 1492.

A wildflower preserve near Fredericksburg, Va., honors Stonewall Jackson, Confederate general.

Branches of maple leaves were attached as camouflage to uniforms of Canadian soldiers in the War of 1812.

In a Pittsburgh skyscraper hospital, a pneumatic tube system carries messages, medicines, and charts quickly to any part of the hospital.

Table tops made of a single piece of citrus wood were a fad in ancient Rome, and Cicero paid \$25,000 for one brought from Mauretania.

In New Jersey penal institutions, seven out of ten boys and men say they associated with law-breaking gangs when they were children.

In this country, partridges rarely occur more thickly than one bird to six acres; but in some well-managed European areas there is a bird to every one or two acres.

A little-known tribe of Indians in the Louisiana swamps is being studied to see whether it is descended from prehistoric mound-building Indians, and whether it has kept any ancient customs.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

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What has become of the World War refugees? p. 99.

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Pumpkin-milk mixed with cocoa is a new patriotic drink in Germany.

In a study of deaf children it is concluded that deaf boys are equal in mechanical ability to boys of good hearing.

A locomotive used to be limited to a 100-mile run; now, a locomotive may pull a train over 2,000 miles without change.

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SOCIOLOGY

New Refugee Problems Find Old Ones Still Unsolved

REFUGEES from the storm of the World War still present unsolved problems as the rising cloud of a new tempest threatens to drive still other thousands from their homes. And the League of Nations, for some years a principal supporter of efforts toward their rehabilitation and location in new homes, appears unable to give them any more help.

Michael Hansson, president of the Nansen International Office for Refugees, has stated in Geneva that he is to receive no more grants from the League. All operating funds must now come from the refugees themselves, insofar as they have been able to develop new economic independence, with such additions as outside donors may make.

The Nansen organization has done a really monumental work for these unfortunates, many of whom are literally people without nationality. They come from all war-disrupted lands, many of them without passports or any means of identifying themselves, thousands of them destitute or nearly so. The work of the Nansen Office in finding some way to regularize their status has been of even greater importance than its function as almoner to the hungry and shelterless. It has handled something

over half a million cases where lack of official papers was placing difficulties in the way of residence, migration, acquisition of new citizenship, etc.

Among the works of mercy of the Nansen International Office for Refugees have been the settlement in their homelands of 1,300,000 Greeks and 200,000 Bulgars expelled from Asia Minor by the Turks, the establishment of 50,000 exiled Armenians in French Syria, and the naturalization as Turkish citizens of 100,000 White Russians in Istanbul.

But despite all these accomplishments, the Office still has the care of thousands on its hands. And just as League of Nations support is withdrawn there comes the prospect of a new and overwhelming load.

Science News Letter, August 13, 1938

SCIENCE

Science Urged to Aid World Settle Problems Peacefully

SCIENCE is capable of being misused to bring harm and unhappiness to mankind. With two wars in progress and an armament race in Europe, many scientists are wondering what can be done to protect the world from the consequence of organized scientific effort applied to war and war preparation.

Responsibility for the growth of destructive forces can not be accepted by scientists, except as citizens. There has always been war. Science has been used to make it more efficient and deadly, just as science has been successful also in promoting health, industry, and peacetime activities.

As during the World War, there is discussion as to whether scientists should aid military preparations. Now as then, the majority among scientists will co-operate in giving technical assistance to all the intricate details of the modern war machine.

Europe is more acutely faced with this problem. An opinion from *Nature*, the British scientific journal, is more first-hand. One of its editorials asks:

Does there not rest upon men of science as a body a responsibility for the promotion of peace, and peaceful methods of international adjustment, beyond that which already attaches to them as citizens?

Scientific workers, it is felt, are better able than most men to realize what immense conquests have already been made over ignorance, weakness and evil. They have long been accustomed to international cooperation, without which the state of science itself would still be relatively primitive. The adoption of a similar policy in the social and economic sphere would be fruitful. It would remove many of the chief causes of international mistrust and allow military budgets to be diverted to happier uses.

Science News Letter, August 13, 1938

GEOGRAPHY

Nation Not Half Mapped; Surveys Called Economy

ONE of the first things that a person does when he acquires land is to get it surveyed so that he may know what he actually owns and so that he may plan intelligently how to use it.

Judged by that criterion of good practice, Uncle Sam is not too careful about the great nation that he, as the symbol of the people, owns. For the United States is ill mapped. Of the 3,026,789 square miles of U. S. territory, exclusive of Alaska, less than half has been mapped topographically, that is, to show elevations, roads, houses and other important features of the landscape. Some 741,000 square miles of that half was mapped from 40 to 90 years ago by methods and on scales that do not serve present requirements. No adequate maps exist for 2,500,000 square miles



NEW PICTURE OF OLD MONSTER

The U. S. National Museum has a new painting of an ancient saurian, done by R. Bruce Horsfall. The creature, a plant-eater related to the brontosaurs, is known to paleontologists as Camarasaurus. In the background is a flesh-eating biped saurian, hungry for a bite of Camarasaurus meat.

and there are no topographic maps at all for 1,500,000 square miles.

Engineers and those who are charged with planning and executing public and private works in future years are frankly uneasy over the failure of Congress to inaugurate a real mapping program as urged by the American Engineering Council and other leading professional organizations and approved by the National Resources Committee, the Federal Board of Surveys and Maps and other government bodies.

It is urged that mapping is really an

"economy" measure because it will cut the cost of future public works activities. A few additional millions spent each year to speed up the mapping of the country will pay big dividends.

The U. S. Coast and Geodetic Survey and the U. S. Geological Survey make our nation's maps. First a net of accurately located triangulation points and level bench marks is spun over the country by the Coast and Geodetic Survey as the foundation of maps. Then Geological Survey parties build the detailed maps on this base.

Science News Letter, August 13, 1938

PSYCHOLOGY

Knowledge of Failure a Privilege; Lunatics Never Worried by It

Consciousness of Defeats or Defects Mark of Sanity and Intelligence, Declares Well-Known British Psychologist

BE PROUD if you know you have failed. It isn't everyone who can feel discouraged and know what it is to lose out.

The feeble-minded, for example, may never have the experience of failure. They may flunk out on every job they try, but they do not notice it and go on blissfully unaware of any shortcoming.

Men who have lost the important higher thought centers in the brain, because of brain tumors, have also lost the ability to know failure. So closely is this thinking part of the brain tied up with failure, that one psychologist has renamed it the "worry center."

Mental patients in their excited states are also unable to experience failure. For them, the words "impossible" or "defeat" simply do not exist. Even though they may have missed every chance in life and are totally unable to get on outside a mental hospital, still they are riding on top of the world—supreme successes.

Failure is pretty terrible to the one who lives with it, to be sure. It can cause complete mental breakdown. For this reason, psychologists have become concerned over the possible effects on the mental health of the nation of such a mass failure as came with the Great Depression. Every effort is being made to protect little children, at least, from the depressing experience of repeated failures.

But failure can also provide a power-

ful stimulus to great successes. Such a profound setback as that of a serious physical handicap may contribute a great deal toward urging a man to world renown.

The inventor Steinmetz was seriously deformed physically. The great musician Beethoven was deaf during much of his life. So also was Edison, renowned for his inventions of hearing devices. President Roosevelt, early in his political career, was stricken with infantile paralysis.

Whether a person will be broken by failure, or will be driven to great successes, depends upon the individual and perhaps somewhat upon his early training, it has been found by Dr. Dorothy Gandine-Stanton, psychologist of the University of Manchester, England, whose study of failure has just been made public in the international scientific journal, *Character and Personality*.

Watch a child at play and you can see for yourself how characteristic is each individual's reaction to winning and losing. When Johnny loses the game of checkers, he may push the board away and say, "Aw, let's play Bingo." Tom, on the other hand, cannot be induced to give up until he has won. Ted, when he sees the game going against him, begins a frantic pushing of men that leads him into new losses. Joe sets up a howl that somebody cheated. Mary cheerfully starts the next game—she can't see that it makes any difference whether she wins or loses. Ruth is re-

duced to tears over her chagrin when she is defeated by her younger sister.

To some extent, it may be possible to change these reactions to defeat by proper training, but for the most part they persist through the passing years, Dr. Gandine-Stanton found.

Ruth, weeping over her defeat, is not to be blamed or pitied too much. Those who, like Ted, react to difficulties by increasing their activity feverishly and without reason are not those who make the most of their abilities, Dr. Gandine-Stanton found.

Instead success appears to come to those who, in difficulties, reduce their activity. They seem to make the most of their abilities and achieve more than might be expected of them.

It is not necessary to reverse the old adage and say, "If at first you don't succeed, don't try again," she warns. Persistence that brings success is not at all the same as activity. In fact, active children usually go out of the game earlier than passive children.

What Dr. Gandine-Stanton's studies seem to show is that failure can be turned to success only by the person who has the ability to recognize his own limitations and who, when faced with defeat, can sit back and think.

A study of literature revealed to Dr. Gandine-Stanton that some individuals can write the whole story of their lives and never mention a single failure.

Dictators "Never" Fail

"Conspicuous among them are those of Hitler and Mussolini," she said. "While Hitler makes no reference to any failure of his own, he suggests that in others it is only due to 'cowardice, laziness or incapacity.'

Mussolini is more explicit about his own immunity from failure. He writes: 'I have always felt a power over events and over men . . . I never had any feeling of uncertainty . . . The Grand Council has always succeeded. I preside over it.'

"In striking contrast to these who admit no defeat are the accounts of those who at once admit their own inability and withdraw from the contest. Such behavior has been found in distinguished men in all spheres of activity. Lindbergh describes his first flight: 'When the plane was about four feet from the ground the right wing began to drop, so I decided it was time to make a landing.'

Fortunately, most of us do at some time or other experience failure, Dr. Gandine-Stanton says. Yet even though failure is a necessary balance wheel of personality, everyone is reluctant to ad-

mit his shortcomings. It is quite impossible for any person to face the admission that he is completely a failure. To avoid acknowledging failure we argue ourselves into making virtues of our shortcomings or blame others or "bad luck" for our deficiencies.

Likewise we must feel that whatever we identify with ourselves is perfect. Thus our ruler is infallible, our nation sinless, our church divine, our family blameless, our possessions desirable, and our race supreme.

The feeling of (our) race superiority and (other) race inferiority is causing much world distress today.

"Individuals are reluctant to admit failure; groups rarely, if ever, do so," Dr. Gandine-Stanton says. "It is too difficult." She quotes Jacob Wassermann as making this clear when he writes:

The Tragedy of Israel

"To be proclaimed inferior as an individual is far more easily borne than disparagement of one's race . . . Against libels of the race all arguments and proofs are ineffectual, and the inmost and most carefully guarded mirror of the consciousness grows dim and tarnished."

Yet naturally he does not believe his race to be inferior, Dr. Gandine-Stanton comments, for he adds later:

"The tragedy of the Jew's life is the union in his soul of a sense of superiority and the feeling that he carries a stigma of inferiority."

No group has ever been found to believe that it is inferior to others.

"It is doubtful," says Dr. Gandine-Stanton, "if a group could survive the experience of failure. Such experience often leads to the disintegration of the individual as is shown in neurosis, and I believe it would inevitably lead to the disintegration of the group. To maintain the necessary 'sense of superiority,' we rationalize as groups even more fiercely than as individuals."

Perhaps that is because we unconsciously see in the grandeur of our race and its heroes a compensation for our own individual lack of importance.

Science News Letter, August 13, 1938

• Radio

Every Friday at 7:30 p. m. EDT, 6:30 p. m. EST, 5:30 p. m. CST, 4:30 p. m. MST, or 3:30 p. m. PST, Science Service cooperates with the Columbia Broadcasting System in presenting over the Columbia coast to coast network a new series of "Adventures in Science" presenting dramatizations of important scientific advances and discussions by eminent scientists.



AFRICA'S CLAIMANT FOR BIG-TREE HONORS

Baobab trees do not contend for distinction in height, nor so far as is known, for longevity; but it is claimed on their behalf that they have the greatest trunk girth in all the earth's trees. The specimen shown here, in its leafless phase, is depicted in a large mural painting done for the Field Museum of Natural History by Charles A. Corwin.

PSYCHOLOGY

Boy's IQ Increases 50 Points in 11 Years

THE CASE of a boy who at 4½ was about to be sent to an institution for the feeble-minded and at 15½ is a high school student looking forward to a chemical engineering career is revealed in the *Journal of Consulting Psychology* (May-June).

Editorially this journal in telling this experience urges psychologists to "dispel the popular error regarding the constancy, and hence the sanctity, of a recorded IQ."

For this boy's IQ when 4½ was judged to be 70. Now it is 50 points higher, 120, as measured at the New York Psychological Service Center. It is suggested that the first test may have been given clumsily.

"Would that it were possible to scotch for good and all the superstition that everyone's intelligence—according to the views of psychologists—is wholly inborn and unalterable!" the editorial says.

"Parents sometimes shudder beneath this shadow. Educators remain oblivious of familiar data regarding the inconstancy of intelligence quotients. They have even been known to countenance the

filling of a pupil record card on which an IQ has been entered without notation as to the date or the test employed, which may have been a Binet or a non-comparable paper-and-pencil examination. There the number stands, as though it described an unchanging trait like racial stock, or date of birth. Whoever recorded it in this way must have been blithely unaware that an intelligence quotient is only a ratio, suggestive of the rate at which the individual's mentality has been maturing, and that a boy who matures rapidly from eight to ten may have a brother whose spurt in mental development comes between ten and twelve.

"While in a bare majority of instances the change in rate of maturing is not great—not more than five points within three or four years—no adviser should be allowed to forget that sometimes an IQ shifts more than twenty points, and that over longer periods the variation may be enormous."

Dr. Walter V. Bingham of Stevens Institute is chairman of the editorial board of the journal.

Science News Letter, August 13, 1938

ETHNOLOGY

See the Funny White Man!

How We Look to Savages, Summarized in Collection of 700 Pictures of Natives' Portrayals of Europeans

By EMILY C. DAVIS

REMEMBER Bobby Burns' oft-quoted wish? The one that goes, "Oh, wad some power the giftie gie us to see ousels as ithers see us!"

Well, it's too late to do the Scottish poet any good, but that wish has come true for you and me.

We can now see just how queer civilized man looks—to a benighted savage.

What is more enlightening, we can see how white people impressed primitive folk at first glance. First impressions are important. When a white man was jungle "news," he was a sensation—and sometimes a scream.

A German anthropologist, Prof. Julius Lips, has given us this first good view of ourselves portrayed by curious observers.

In pre-Nazi Germany, Prof. Lips was director of a noted museum in Cologne, and editor of learned publications. Now he is in America, in Washington, D. C.

Scholarly Prowlings

But just before the Nazi era, when Prof. Lips was studying mankind in his thorough German way, he spent three years in Africa and other out-of-the-way places. He says he went around like Harun al-Rashid in the Arabian Nights, who walked Bagdad streets disguised, to find out what people really thought of him.

Prof. Lips has found out. We are just as funny and curious to a savage as the savage is to us. And most islanders and jungle tribes haven't seen the new hats, either.

If you think a primitive artist can't see the humor in civilized life, take a look at one of his satiric portrait carvings. You'll be convinced.

One is an Englishman, done in the exact comedy-Englishman style to which we are accustomed. But a native did it, an artist of the Nicobar Islands in the Bay of Bengal. He got inspiration straight from life for his Briton with gaping mouth, big teeth, long nose, and blank stare. He completed the type with a pink coat, and a tropical helmet set squarely atop a long, large head. One

eye is glazed as if behind a monocle, but Prof. Lips suggests that the blank eye was originally fitted with a painted shell eyeball, like the other.

This primitive masterpiece is in the museum at Cologne, where Prof. Lips was the director. At least the statue was there, when he left. The Nazi government isn't amused at non-Aryan savages who make fun of Nordics.

The scarecrow Englishman was made to keep birds out of a field. Nicobar Islanders used to put native faces on their scarecrows. But white men are more effective.

Protection by Images

Incidentally, a good many tribes make bogeyman images of white people, to scare off thieves and evil spirits. A white man glaring over a hut entrance is considered good protection, partly because of his strange countenance, but mainly because white men are powerful in other ways and therefore ought to be good at things like this, too. A bogeyman resembling a European ruler is considered tops.

So much for the scarecrow Englishman. Now take a statue of the English woman. White women are rare in native art, Prof. Lips says, because white men ventured alone to wild country, at first. Later, when wives tagged along, they still weren't important. They didn't carry guns. They didn't give orders, except around a house.

But when natives did take trouble to carve a white woman, the result is priceless. Prof. Lips knew of only ten or eleven white women thus portrayed before he came to America last year. Recently, he became acquainted with a new one, when the Field Museum put a prize-winner in the spotlight. (SNL, April 9, p. 234.)

This primitive art work, which the Field Museum calls "European Beauty," portrays the unpopular wife of an official in Madagascar. The Bara native who immortalized her in wood caught her prim, haughty look, her too dainty way of lifting her purple parasol, the sun helmet set high on her hair, and her teetering red shoes. Nothing could say



OH! I SAY!

Englishmen look like this, to Nicobar Islanders who live in the Bay of Bengal. If you said, "Looks like a scarecrow!" you were right, first guess. Natives made the figure to keep birds out of a field.

more plainly than this, that the natives thought her ridiculous.

There are many other portraits of white people by natives, that are laughable to us. But Prof. Lips explains that we can't always tell whether the natives are trying to be funny. They may be merely expressing the unfathomable queerness of the white race.

Take the images of Queen Victoria, for example. She was popular with her African subjects, and they tried to copy official portraits that came their way on post cards and posters. Mostly these showed a billowy lady, with plump cheeks, a spiky crown on her head, and a veil trailing down her back. The post-card portraits ended mysteriously at the waist. And that, says Prof. Lips, is why you find African images of Queen Victoria that reproduce these same features, and are sawed off at the base, like chess pawns.

The African artists, you see, were not sure whether their Queen, who rode in a carriage, had feet. One, who thought

she did, carved two tiny feet like dangling clappers in a bell inside the skirt.

A West African carved a most ridiculous figure of the German Kaiser—to our way of thinking—though the native may have intended only sober realism. You see the Kaiser, as stiffest of humans, carved with bulging chest and upturned chin, and perched commandingly on a mouse-faced horse—and the Kaiser's legs are on backward! The simple explanation is that the African subject hadn't observed riders closely enough to get leg angles correct. And he had found the torso of his Emperor far more striking than legs, anyway.

It would be interesting to see how African artists would portray Hitler or Mussolini!

Neither Childlike Nor Mad

Perhaps you realize by this time that Prof. Lips doesn't think primitive art is child-like. And it isn't like the fantastic art of the insane, either. He has compared a great many drawings and models made by primitive artists with the art work of mental patients. Only once did he find something by an insane person that reminded him of primitive art.

In its own way, native art is adult, and healthy, and often shrewd. The primitive world has produced some notable artists, honored by their own people. These artists do not sign their work, and so they remain unknown and unsung in the story of art. Primitive "old masters," however, in the form of carvings and pictures and metal work, are getting appreciation in collections.

There are thousands of these native art works that deal with the white man and his belongings. Prof. Lips himself has collected about 700 pictures of them. Many of the originals are in museums in Europe and America. They are valuable as historic records, even when weak in art value. For the primitive people of the earth have become accustomed to the white man now. They don't make so many pictures of him.

Prof. Lips enjoys the humor and surprise of seeing our civilized world through eyes of primitive man. But he regards this native art as far more than "entertainment," or historic data. It is important material for study of man, material which anthropologists had somehow overlooked. His recent book, "The Savage Hits Back," in which he presents and discusses several hundred pictures, is called by a fellow scientist, Bronislaw Malinowski, "a new approach

to the most vexed problem of culture change and diffusion."

Prof. Lips has traced the evolution of the white man in native art. First came the discoverers. They were exciting and frightening. They often came with masses of soldiers. They gave commands and enforced them with the magic of rifles. Naturally, soldiers figure largely in the earliest portraits of civilized man by savages.

The soldier carries his all-important gun. And you can usually tell at a glance what country the warrior hails from. Savages conquered by Frenchmen were impressed by upturned moustaches, small beards, uniforms. An observant native modeled a French officer with one hand stuck into his jacket in the famous Napoleonic gesture.

Later came missionaries and traders, and eventually tourists. An ordinary European could be shown sitting on a chair, says Prof. Lips, typifying "another of them." A top hat was another trademark of the white man. One Alaskan Indian recorded the incident of a high-hat gentleman riding in a native boat with two Indians, including the artist, as navigators.

A Cartoonist's Eye

But for missionaries and traders, the natives pounced upon more subtle distinguishing traits, just as a cartoonist selects the traits that will instantly mean "Uncle Sam" or some leading political figure.

If the natives liked the missionary they showed pleasing qualities in his face and manner. If they didn't they were cruelly frank in making his picture.

In the British Museum, Prof. Lips found a little ivory figure that he thinks is a portrait of Livingstone, the African missionary. The figure is carved respectfully, showing a sober but kindly man. This is what would be expected, considering that Africans thought enough of Livingstone to carry his dead body 2,000 miles through all sorts of wilderness hazards to the coast, just because he asked it.

Traders, on the other hand, have been almost universally hated by natives, and any portrait of a trader is apt to be a mean one. The merchant followed the slaving era, and he introduced the harsh system of putting natives to years of labor, as a way of paying off their debts.

It is easier to pick out a merchant than any other European type in savage art, Prof. Lips discovered. The merchant is known by his harsh face. Sometimes he is shown lazily reclining in a ham-



ON WRONG

The German Kaiser portrayed by an African native, who didn't recall how a rider's legs should be attached.

mock, while natives carry him. Sometimes he sits holding his precious account book. Always he is shown counting, counting, counting—greedily figuring ways to grasp more of the gold, ivory, spices, or other treasure from the land.

A tourist you can tell in native art by the huge golf cap and a vacant stare. That's a first-class tourist. A more earnest and simple individual is apt to be a third-class tourist.

The white man's belongings have fascinated the savage, as much as tom-toms and grass skirts intrigue us. But not all of our belongings are equally interesting to a native. They never tired of picturing guns, because of the tremendous magic power in a gun. And a ship was something to be observed and drawn with paddlewheels and smokestacks and anchors made very large and important.

Often the native left out the most essential features of the ship, or the trigger and lock on the gun. But when we look at a piece of (*Turn to Page 109*)

SCIENCE

Boy and Girl Scientists Will Receive Honors

BOY AND GIRL science leaders throughout the nation will be presented honorary junior memberships in the American Association for the Advancement of Science each year upon nomination of academies of science affiliated with that national science organization.

Each of the affiliated academies will nominate both a boy and a girl according to rules that each academy will formulate for itself. Where the youthful scientists have been organized into junior science academies, they will be chosen from their memberships. Otherwise they will be selected from junior science clubs, such as are found in many high schools.

The boys and girls chosen for honorary junior membership will be given privileges in the A.A.A.S. for a year and they will receive the SCIENCE NEWS LETTER.

Arrangements for this cooperation between the Association and its affiliated academies of science are now being made by Drs. Otis W. Caldwell and F. R. Moulton, general and permanent secretaries of the American Association for the Advancement of Science.

Science News Letter, August 13, 1938

GEOLOGY

Hot Pools Become Geysers In Yellowstone National Park

See Front Cover

BY SOME unexplained quirk of subterranean nature two of the best known hot springs pools in Yellowstone National Park have turned into geysers. Rainbow and Congress Pools, known to thousands of tourists, are putting on a new show this summer.

Rainbow, located in the Black Sand Basin near Old Faithful, is doing considerable damage for all its spectacular display. Three times daily it shoots a 60-foot column of water high in the air and at each eruption it washes away geyserite from the margins of the pool. Walks leading to the pool are vanishing and a bridge over Iron Creek is in danger if the eruptions do not cease.

Congress pool is littering the surrounding countryside with a gray coating. At irregular intervals it is erupting muddy waters containing powdered rhyolite of the fineness and consistency of talc. This substance has drifted over the highway, guard rails and trees in

the vicinity until they are a dirty, grayish white.

Something is definitely happening deep underground beneath Yellowstone, for increased activity is also reported in the upper basin geysers and in the hot springs at Mammoth. Park naturalists have seen the displays of the Park show too many abnormalities in the past to hazard any forecasts of the future, however.

The front cover illustration, from a J. E. Haynes photograph, shows a part of the terrace formation at Mammoth Hot Springs, where unusual thermal activity has been noted this season.

Science News Letter, August 13, 1938

SCIENCE

Canadian Research Helps Industries and Agriculture

ONE OF the finest buildings in Ottawa, Canada's capital, houses the Canadian National Research Council, which to the Dominion is what the National Bureau of Standards is to the United States and what the National Physical Laboratory is to England.

It is a cradle of industry where new industries are born and nurtured and where old ones are rejuvenated. A company of scientists of all varieties is at work in laboratories within the building, while in various colleges cooperative projects are under way.

Storage and transport of food is being studied as an aid to Canada's commerce. New developments in agriculture are being applied.

Plant hormones that speed growing and may have important practical results are being manufactured and used experimentally. A new kind of barley, with promise of superiority over the original variety, has been produced by heating the seeds and changing their chromosomes. This is the first time that new and valuable economic plant characters have been produced by heat treatment.

To Canada forests are important and acres are being cut daily for paper and other needs. Scientists are looking forward to fast-growing poplar trees to replace the original forests. Canadian cytologists find that natural hybrids between European and native species, with exceptional vigor and some promise of disease resistance, have an extra set of chromosomes, those minute bearers of heredity within the germ cells. They expect to use this fact in breeding rapid growing trees.

Science News Letter, August 13, 1938

FISHERIES

Starfish, Oysters' Enemy, Controlled by Quicklime

STARFISH, most destructive enemy of the North Atlantic's oysters, can be controlled effectively by a chemical warfare barrage of quicklime (calcium oxide) rained on them as they lie on the ocean bottom.

This good news for oystermen comes from Victor L. Loosanoff and James B. Engle of the U. S. Fisheries Biological Laboratory at Milford, Conn. For a century efforts have been made to eradicate the common starfish in oyster beds, hitherto without success.

Extensive tests in Long Island Sound proved the efficacy of the new method. Eight out of ten starfish were destroyed by coarse lime spread 480 pounds to the acre of ocean bottom. The caustic chemical does its work by direct contact. Particles fall on the starfish, disintegrate its delicate skin membrane, create larger lesions and finally expose the internal organs fatally.

Fortunately the lime does not seem to be very harmful to oysters, clams, crabs, barnacles and adult flounders, and the report states it promises therefore to be a practical method of controlling the starfish.

Science News Letter, August 13, 1938

METEOROLOGY

CO₂ in Stratosphere, German Research Shows

THE stratosphere contains a great deal more of carbon dioxide than it theoretically should. This gas, a by-product of life activity, should have its greatest concentration near the surface of the earth and should diminish rapidly with increasing altitude.

Actually, Prof. N. Regener of Stuttgart has discovered by analysis of upper air samples captured by means of high-flying robot balloons, the carbon dioxide content of the atmosphere at 18 miles elevation is only five parts in 100,000 less than it is at the surface.

Constant mixing by vertical air currents is credited with this unexpectedly even distribution of carbon dioxide.

Science News Letter, August 13, 1938

IN SCIENCE

SCIENCE FIELDS

PUBLIC HEALTH

Jungle Mosquitoes Guilty Of Carrying Yellow Fever

JUNGLE bred mosquitoes can harbor and transmit yellow fever, a Rockefeller Foundation research team at Rio de Janeiro report (*Science*, July 29). Until recent years yellow fever was regarded as a house disease, but when in 1932 it broke out under rural and jungle conditions the existence of a jungle type of the disease became evident.

During the epidemic of this year jungle mosquitoes were caught and allowed to bite monkeys in order to determine whether they carried and transmitted the disease. The research workers were Drs. R. A. Shannon, Loring Whitman and Mario Franca of the Cooperative Yellow Fever Service of Brazil and the International Health Board.

Science News Letter, August 13, 1938

PUBLIC HEALTH

No Typhoid Deaths in 27 Large Cities Last Year

TWENTY-SEVEN large American cities have achieved a place on the American Medical Association's honor roll for no deaths from typhoid fever during 1937. They are: Bridgeport, Conn.; Canton, Ohio; Duluth, Minn.; El Paso, Tex.; Fall River, Mass.; Fort Wayne, Ind.; Long Beach, Calif.; Lynn, Mass.; Milwaukee, Wis.; Newark, N. J.; New Bedford, Conn.; Paterson, N. J.; Reading, Pa.; Rochester, N. Y.; Seattle, Wash.; Somerville, Mass.; South Bend, Ind.; Spokane, Wash.; St. Paul, Minn.; Syracuse, N. Y.; Tacoma, Wash.; Tampa, Fla.; Tulsa, Okla.; Utica, N. Y.; Waterbury, Conn.; Wichita, Kan.; Yonkers, N. Y.

In the previous year only 18 cities placed on this A. M. A. honor roll.

Special mention is given to nine cities that had no typhoid deaths either in 1936 or 1937: Bridgeport, Duluth, Fort Wayne, Somerville, South Bend, Syracuse, Tampa, Utica and Waterbury. Bridgeport and Somerville have the proud distinction of having had no deaths from this disease in four years; Fort Wayne, in three years.

Only 280 persons died last year from typhoid fever in the 78 cities for which the A.M.A. has complete data since 1910, the lowest rate ever recorded. While there were a few small outbreaks of the disease last year, this statistical study continues to show the downward trend in the death rate from typhoid.

Only one city — Miami, Fla., — was placed in the A.M.A.'s third, or lowest rank. Miami had 6.3 deaths per hundred thousand population last year.

Science News Letter, August 13, 1938

ARCHITECTURE

Aluminum May Puzzle Future Archaeologists

THE INCAS of Peru decorated their buildings magnificently with gold and silver. They had no money, and they liked bright metal.

In Washington, public buildings are being adorned with other metals that shine pleasingly, and that may impress archaeologists of the future as much as Incan gold overwhelms us.

The interior of the United States Public Health Service building, in particular, shines with metallic trimming. Silvery aluminum is extensively used to beautify halls and stairways of the entrance, windows, and the attractive lecture room. When the building was planned, Andrew Mellon, aluminum king, was Secretary of the Treasury. The Public Health Service is a Treasury Department bureau.

It is intriguing to wonder what archaeologists will make of this display when they unearth our civilization, say, a few thousand years hence. Busy excavators will doubtless have some contempt for Washington. After the pomp of Old World palaces and New World temples in Peru, this Washington lacks splendor. Not a jeweled throne or a solid gold dome in the place!

But when the Public Health Service building is dug out of its accumulated hillock of earth, the excavators may feel repaid, after all. For here is metal used with regal display. Here, they will infer, is the stuff that people of our time admired so much they used it to adorn their greatest buildings. Remnants of office files and desks may puzzle the excavators. We can only hope they will not leap to the conclusion that this was the ruler's palace, and that here he dictated to an army of secretaries.

But it will be the bright trimmings of the building that will create the archaeological sensation of the site.

Science News Letter, August 13, 1938

CHEMISTRY

Fiber and Cloth Made From Soybean Protein

A JAPANESE company is preparing to start production this fall on a small commercial scale of another new synthetic fiber, produced this time by chemical means from the soybean, food plant grown widely in northern Asia and of increasing importance throughout the rest of the world.

Fibers and cloth derived from the soybean, latest source for a flood of new synthetic fibers that is revolutionizing the textile industry in every country, are to be manufactured at a rate of 20 to 30 tons a day when the factory begins operations, it is reported.

Development of the process for converting soybean protein into fiber is credited to Ryohei Inouye, awarded recently the Fujii prize of the Physical and Chemical Study Council of Kyoto Imperial University, one of Japan's "big six" universities, for his accomplishment.

The drive to produce the new material as soon as possible is admittedly inspired by German success with a process that makes a fiber containing 50 per cent. fish albumin and 50 per cent. cellulose and from an Italian method which turns casein into yarn.

Soybean cake, the material remaining after the highly-regarded oil is pressed from the plant in giant mills in Manchuria, is the starting point for the process. Estimates indicate that cloth enough to manufacture a suit can be turned out for a dollar.

Science News Letter, August 13, 1938

ENTOMOLOGY

Spiders Show Hearing; React to Tuning Fork

SPIDERS can hear at least some of the sounds audible to human ears, Dr. F. L. Wells of the Harvard Medical School has discovered. He tested a number of species of orb-weaving spiders, the kind that make the handsome wheel-shaped webs, using a tuning fork of medium pitch, held close to them but not touching them.

The spiders showed various responses, ranging from slight movements of the legs to attacks upon the fork itself, as if it were an insect. Most interesting was the reaction of some of the species, which made their webs vibrate or dance violently. The individuals that attacked the tuning fork swathed its end in loops of silk and tried to bite it.

Science News Letter, August 13, 1938

AGRONOMY

Accident Started Research On Drought-Resistant Corn

Natural Selection Turned to Account Simply by Letting Plants Wilt, Watering Them, and Using Those That Recover

SCIENTIFIC discoveries are rarely, if ever, made as direct results of lucky accidents. But an accident may supply the tip that sets a scientist's active inquiring mind off on a long pursuit that eventually runs down important and useful facts. The legends of Newton's apple and Galileo's swinging lamp are good cases in point.

Research at Kansas State College, that promises to produce valuable strains of drought-resistant corn, had such a semi-accidental inception.

It started in 1931, when James W. Hunter, now with a large commercial seed house in Waterloo, Nebr., was a research assistant at the Kansas institution. He was growing large numbers of inbred seedling corn plants in greenhouse benches.

One spring day, being late for classes, he left the greenhouse in such a hurry that he forgot to open the ventilators. At noon when he came back, the temperature had climbed to 120 degrees.

Fortunately, he had finished work on the batch of corn seedlings, so that it was no calamity to find them all wilted and some of them dead. He noticed, however, that some of the plants still living were in much better shape than others.

He immediately watered all the plants and returned the next day to see what had happened. The badly wilted plants showed very little recovery, but the ones that had been in good shape the day before were just about as good as new.

Here was a lead. With two colleagues, H. H. Laude and Arthur M. Brunson, Mr. Hunter went to work in earnest. The research was conducted as a joint project of Kansas State College and the U. S. Department of Agriculture.

Essentially, the method pursued has been to harness the principle of natural selection. By exposing new strains, as they are developed, to conditions that will kill all but the fittest, researchers still continuing the work are automatically assured that the survivors will have the valuable features they are seeking.

Science News Letter, August 13, 1938

SOCIOLOGY

Modern Social Problems Studied in High School

STRIKES, riots, revolutions and international "incidents," bread lines, bank robberies, and automobile fatalities. All these may be traced to some failure of citizens to function properly in the social group or to some inadequacy of the social group in its relation to the individual.

Only the newborn lives alone. Perhaps even he must be considered as part of the first social group, the family. Certainly from the beginning of school days each of us is called upon to make concessions to what others want.

Yet even in high school and college the student may have no adequate idea of the extent to which he must adjust his own personality to fit in with the complexities of the adult's social life.

A preview is offered by a new textbook of Drs. Emory S. Bogardus and Robert H. Lewis of the University of Southern California and Los Angeles Junior High School, respectively, entitled *Social Life and Personality*.

Problems of adjustment in marriage and the family, training for health-giving and pleasure-giving recreation, the effect of various types of occupations on the personality and the individual reactions to occupational success or failure. These are matters in which young people of high school age have a vital interest.

They have a right, also, to unemotional, factual discussion of such problems as alcohol, and gambling. The automobile as an instrument of death in the hands of unstable, inexperienced adolescents and emotionally immature adults is another such social problem.

Young people need to know of the cultural and social value to them individually of art and music, religion and social service. They need to know how to plan for security in their old age.

Free discussion and a better understanding of the interrelations of the individual and society should serve to minimize the present-day frictions threatening civilization.

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PHYSICS

Still Much Mystery In Simple Happenings

ONE DOES not need to go to the latest atomic research to encounter baffling happenings in nature. There are paradoxes, yet unsatisfactorily explained, in even such seemingly simple things as the rupture, or breaking, of materials.

If you see one motor car towing another with a chain and see the chain break in two it seems simply that the application of too great a force has caused the break. The rupture is across the chain and the force which we say "caused" it was at right angles to the plane of the rupture. Every elementary physics textbook will back you up on this reasoning.

But the matter may, or may not, be so simple. Prof. Percy W. Bridgman, Harvard's profound scientist who studies the behavior of materials under extreme pressures, can throw some mental sand into your reasoning on this point.

Take one test which Prof. Bridgman describes (*Journal of Applied Physics*, August). Into a suitable chamber he slides a rod of glass, through tight-fitting collars, and leaves the two ends sticking out. Then, by hydrostatic pressure, he subjects the part of the rod inside the box to high pressure. When the pressure is great enough the rod breaks crosswise as though you had pulled too strongly on the ends.

Here is not a pull, but a push, which is applied not at right angles to the plane of the fracture but parallel to the plane. How would you explain that happening by the usual, simple concepts of force causing rupture? The

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answer is that you cannot. And thus we'll leave you with the paradoxical statement of Prof. Bridgman that "A body does not break because there are unbalanced forces acting on the atoms, but there are unbalanced forces acting on the atoms because the body breaks."

This leaves the situation about like the old question of the chicken and the egg, but it does indicate that there is still plenty to learn about the more simple things.

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GEOLOGY—CHEMISTRY

CO₂ Gas Wells May Yield "Air Fertilizer" For Crops

NATURAL gas is not always something to burn in cookstoves and industrial furnaces. Sometimes the gas that pours from the earth's veins is the least combustible thing in the world—carbon dioxide. Some wells yield carbon dioxide at pressures approaching 1000 pounds per square inch, and there is one "gasser" in Mexico that discharges 150 million cubic feet a day, enough to make 9,000 tons of dry ice.

Use should be made of this great natural resource, says Prof. Frank E. Germann of the University of Colorado. To some extent this is already being done, thanks to the rise of the dry-ice industry. Where it would be uneconomic to ship the carbon dioxide as a liquid in cylinders because of the long distance to market, dry ice is light enough, and loses so little in transit, that it can be made and transported at a profit.

But an even greater use can be found for the gas by piping it to market-garden regions and using it to "fertilize" the air around growing plants, Prof. Germann feels. Plants make food out of carbon dioxide in the presence of sunlight, and the three hundredths of one per cent. of the atmosphere which it now constitutes can be increased many fold by artificial addition, with great advantage to plant growth.

The most ready and obvious way of using carbon dioxide to enrich the air around plants would be in greenhouses, especially in connection with one of the methods of soilless cultivation recently developed, and possibly also with artificial light. However, Prof. Germann believes that it may even be possible to flood open fields with it, at least in low concentrations.

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CHEMISTRY

Heavier Kinds of Nitrogen And Sulfur Atoms Produced

WHEN a factory starts to produce a new kind of product, that's news. When the product consists of a kind of matter that has never been available before, that should be even bigger news.

At Columbia University in New York City, Dr. Harold C. Urey is engaged in manufacturing for scientific purposes relatively pure isotopes, kinds of atoms that a few years ago science did not realize existed.

Dr. Urey is a winner of the Nobel prize in chemistry for his discovery of what is now called deuterium, the kind of hydrogen that is twice as heavy as the common kind. Deuterium (D) is now available in the form of heavy water and otherwise in extreme purity and in sufficient quantity.

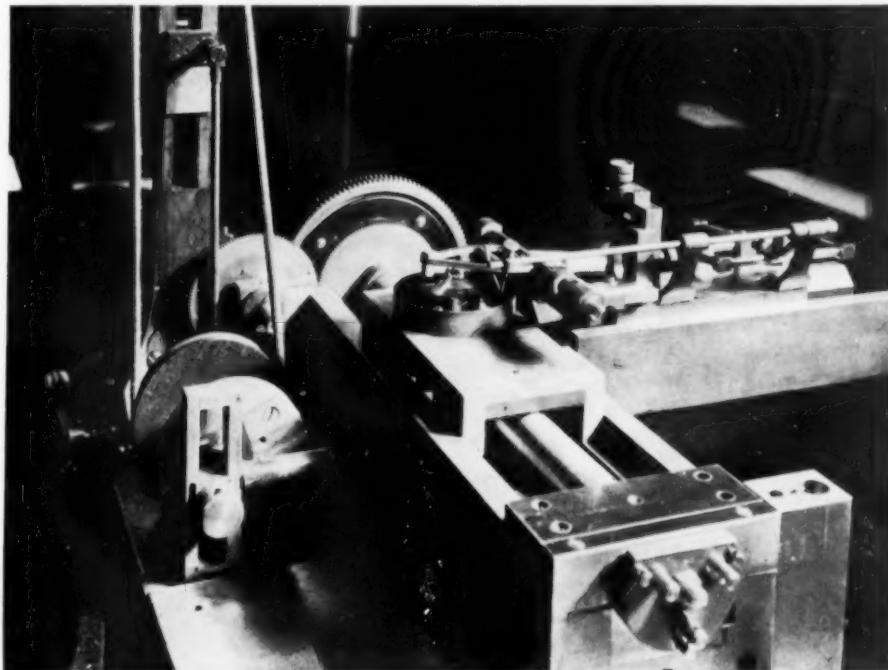
Scientists use deuterium to tag the way compounds behave during chemical reaction. They are finding that the heavy kind of hydrogen does modify the

compounds in which it takes the place of common, light-weight hydrogen although it is not deadly as some feared—or hoped—when it was first discovered.

Now Dr. Urey is separating out two other isotopes, nitrogen (N) of mass 15 and sulfur (S) of mass 34, which is a much more difficult task. He uses a sort of giant still that is 150 feet tall, or rather would be if a very trick, non-valve pump for gases and liquids did not allow him to put the whole apparatus on one floor. The heavier atoms of nitrogen 15 (the common nitrogen is mass 14) and of sulfur 34 (the common sulfur is mass 32) tend to separate out at the bottom. He is treating raw materials by the ton.

Just now there are only scientific uses, but you never can tell just when some industrial use will be found. Costs? Per gram-atom, D is \$10 commercial; N 15 is \$180 and S 34 is \$40, for materials used.

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270,000 LINES TO THE INCH

Ruling more than a quarter of a million lines to the inch on metal plates, this machine prepares diffraction gratings for use in astronomy and physics, to split light up into its spectrum, much more accurately than is possible with a prism. The ruling engine, built at the University of Chicago by the late Prof. Albert A. Michelson, was exhibited recently at the Museum of Science and Industry in Chicago.

ENGINEERING

New Telegraph System Uses Tone From Organ

Instrument's Tone Generator Controls Currents of Different Frequencies, All Passing Over Same Wire

A NEW system of telecommunication that uses the tone generator from the Hammond electric organ as an integral part of the wire circuit and makes possible simultaneous transmission of 96 messages over existing telegraph facilities has been installed on Western Union lines between New York and a number of key cities.

Intended for eventual extension throughout the country, the new system uses the electric organ tone generator to generate a number of electric currents, each of a different frequency, which can carry messages at the same time over the same wire without interfering with each other.

The system has already been applied to the circuits linking New York and Chicago, New York and Washington, New York and Atlanta and New York and Buffalo, it was stated.

It makes use of the "carrier current" principle, the most important general development in the field of telegraph and telephone communication in the last three decades. A number of alternating currents, which can be sent over the same wire without interfering with each other if they are sufficiently widely spaced, carry the message, which can either be a voice message as in telephony, or the telegraph message. The latter is transmitted by interrupting the

carrier current in accordance with a code.

The tone generator from the Hammond organ, which replaces bulky pipes and reeds with compact electrical apparatus, is used to produce the different low-frequency carrier currents. The electric organ uses a current of a given frequency to generate a musical note whose pitch or frequency is the same.

The frequencies are spaced 300 cycles per second apart, making possible 22 simultaneous currents on a single circuit. As a result of methods previously in use, each frequency can be made to carry a number of messages, making possible the total of 96.

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MEDICINE

More Research Needed On Infantile Paralysis

MUCH research must still be done before infantile paralysis can be brought under control, it appears from deliberations of a group of experts who recently conferred in New York City. In fact, Dr. Thomas M. Rivers, of the Rockefeller Institute for Medical Research, told the group that:

Epidemics of infantile paralysis are caused by a filterable virus. However, all cases occurring in an epidemic of paralysis may not be caused by the

same virus. Furthermore, different viruses may be operative in different epidemics.

This means that the muscles must be carefully handled and protected during the very earliest stages of the sickness.

"Skillful protection before wrong positions are assumed and weakened muscles overused or stretched has meant the difference between the resulting disability and restitution to normal life," a report from the U. S. Public Health Service states.

In order to assist physicians, nurses, physiotherapists and parents in protecting muscles weakened by this ailment and in restoring them by proper exercise to full usefulness, this same government bureau has issued a lengthy bulletin giving detailed instructions on care during the period of recovery from infantile paralysis. One of the points emphasized in this bulletin and by authorities generally is the importance of not starting corrective exercises too soon. Another important point is to avoid the slightest fatigue.

Science News Letter, August 13, 1938

CHEMISTRY

Bread Without Crust Made in New Type Pans

REBELLIOUS small boys who don't like to eat crust will be freed of this bane of the table as soon as a recent invention, by A. Horlebeck and Dr. C. Wiesmann of Wuppertal-Barmen, comes into general use.

The Horlebeck-Wiesmann device consists of a baking pan with a cover which can be fastened down tightly by means of screws. It is lined with an absorbent layer of cellulose or other material.

Dough baked in this pan gives off its moisture, alcohol, and other substances to the absorbent lining. At the end of the baking the lining is damp or even wet, and the dough has become bread that is all "inside"—no crust.

Science News Letter, August 13, 1938

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From Page 103

primitive gear, do we always recognize the important features?

A proper dinner table was a wonder to Africa's natives, when they first saw cruet stands, sauce bottles, long-handled metal spoons, teakettles, and tablecloths. One Congo native was so impressed with a long-handled spoon that a white man had broken and repaired with a screw, that the native carved himself a wooden spoon just like it, patched handle and all.

On the other hand, a watch wasn't so interesting. Perhaps that shows a difference between the primitive mind and that of a child. Any baby is entranced with a shiny, ticking watch. But natives could not understand why a white man would look so fondly and so often at this pocket trinket, just to measure time.

"Why measure a thing of which there was always enough?"

That was what the natives would say in perplexity, when Prof. Lips talked to them about timepieces. He adds this comment:

"I have not found any imitations of the watch either in Australia or yet in Africa, or other regions peopled by tribes whose time does not mean money, and to whom the idea of measuring time must appear unintelligible and absurd."

He did find two watch dials pictured by natives, but they were in northern countries. One is the work of a Siberian native. The other is by an Aleutian Islander, one of our own Alaskan aborigines. The Aleutian people have taken over the clock as a motif, like the fleur-de-lis or swastika, and they use it in embroidery and other decorations.

Prof. Lips has had the novel experience of finding out what he himself personally, looks like to uncivilized humans. Among Algonquin Indians of Labrador the anthropologist soon gained the nickname, the Smoker, Oraquai. One old Indian delighted to make the pro-

fessor's picture, and showed him a new one almost every day, all drawn in simple, rapid style, but with half a dozen cigars sticking out of pockets, held in fingers, and in the mouth. A balloon of smoke was the crowning feature.

Prof. Lips has seen more excitement in getting his scientific research on these lines published, than he ever encountered among so-called wild men of the earth. He was just about to produce a volume on his investigations regarding white men in primitive art, when 1933 came, and Hitler's regime. Nazis objected to seeing themselves as others saw them. They forced Prof. Lips' resignation from his museum post, and cut off his expected pension.

A former student of his, dutiful to the government, arrived at the Lips home with State Secret Police, to demand his photograph collection. Prof. Lips refused, hid his pictures. Finally, he smuggled them out of Germany, and he and his wife escaped the country.

In Washington, the German anthropologist has started something new—a department of anthropology at Howard University, and the first department of anthropology for Negro students ever attempted.

Science News Letter, August 13, 1938

• Earth Trembles

Information collected by Science Service from seismological observatories and relayed to the U. S. Coast and Geodetic Survey resulted in the location of the following preliminary epicenter:

Friday, July 29, 8:06.2 a. m., E.S.T.
In the Indian Ocean off the coast of Sumatra. Latitude 1 degree north, longitude 96 degrees east.

Stations cooperating with Science Service in reporting earthquakes recorded on their seismographs are:

University of Alaska, College, Alaska; Apia Observatory, Apia, Western Samoa; University of California, Berkeley, Calif.; Des Moines Observatory, Des Moines, Iowa; Dominion Observatory, Ottawa; Dominion Meteorological Observatory, Victoria, B. C.; The Franklin Institute, Philadelphia; Harvard University Observatory, Harvard, Mass.; University of Hawaii, Honolulu; Hong Kong Observatory, Hong Kong, China; Magnetic Observatory of the Carnegie Institution of Washington, Huancayo, Peru; Massachusetts Institute of Technology, East Machias, Maine; University of Michigan, Ann Arbor, Mich.; Montana School of Mines, Butte, Mont.; Montana State College, Bozeman, Mont.; Pennsylvania State College, State College, Pa.; Phu Lien Observatory, near Hanoi, French Indo-China; Seismological Observatory, Pasadena, Calif.; University of South Carolina, Columbia, S. C.; University of Vermont, Burlington, Vt.; U. S. Weather Bureau, University of Chicago; University of Wisconsin, Madison, Wis.; Zikawei Observatory, near Shanghai, China; observatories of the Jesuit Seismological Association at Canisius College, Buffalo, N. Y., Fordham University, New York City, Georgetown University, Washington, D. C.; St. Louis University, St. Louis; St. Xavier College, Cincinnati, and Weston College, Weston, Mass.; observatories of the U. S. Coast and Geodetic Survey at San Juan, P. R., Sitka, Alaska, Tucson, Ariz., and Ukiah, Calif.

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O. K. TO TAKE NOW

Bird nests are good items for the collector and now that the breeding season is past, can be taken without harm. Feathers, loosened by preening, are even more colorful.

YOUNG collectors nowadays find their style somewhat cramped when it comes to birds. In earlier times, boys used to make collections of birds' eggs. They were interesting and attractive things; and climbing after them was vigorous exercise with the added spice of difficulty and a certain amount of danger. If you have ever read "Tom Brown's School Days," that classic of English schoolboy life of a century or so ago, you will remember what sport birds'-nesting used to be considered.

All that is changed now. We have come to realize how valuable birds are and how much they have been menaced by growth of the cities and dwindling of the woods. Collecting their eggs is frowned upon by the law and public opinion. Tom Brown would find it a strange world.

However, a collector need not be baffled utterly by modern restrictions. If he cannot collect bird eggs or bird skins any more, there are still nests and feathers. These are not collected by very many

people, but that is all the more reason why a good collection of them would be real fun.

No bird's nest should be taken during the breeding season. But that season is ended now, and except for species that sometimes re-use the same nest next year, birds' nests are fair game.

Some nests are impossible to collect. Certain sea birds lay their eggs on bare rock, and the nests of some prairie birds are little more than little hollows in the ground. Nests of eagles and fish-hawks are not only inaccessible but a trifle large—six-foot masses of sticks on lofty treetops or rock pinnacles.

But abandoned nests of most small birds that live in trees are quite easy to collect. The only equipment you will need is a good stout-bladed knife, and maybe a small saw. It is best to take the branches in which the nest is set, as a rule. Cut them off six or eight inches both below and above it.

If a tree containing a woodpecker's nest is cut down or blown over by the

wind in your neighborhood, that is a good opportunity to collect one of the most interesting of all bird homes. Saw the section out, being sure to go far enough below the hole—two feet is not too much—and then split or saw lengthwise to get a vertical section of the nest.

Bird feathers can be collected as you chance upon them in field trips, but the best place to look for them is on the ground in the vicinity of nests. Birds preen themselves at home a good deal, and loosened feathers are most likely to be found nearby. Feathers may be fastened to sheets of cardboard by means of thread strung through holes, or with very narrow strips of adhesive tape across their quill ends.

For more information about collecting nests and feathers and a list of books and pamphlets on the subject, send us a postcard with your name and address. Ask for Bulletin 9. Address Science News Letter, 2101 Constitution Ave., Washington, D. C.

Science News Letter, August 13, 1938

ARCHAEOLOGY

Oldest Domestic Dog Shown At Anthropologists' Meeting

A PREHISTORIC dog that threw in his lot with mankind over 7,000 years ago attracted considerable attention at the International Congress of Anthropological and Ethnological Sciences in Copenhagen.

The dog's remains are pronounced the oldest of any domesticated dog known. They are Maglemosian—which is not the prehistoric equivalent of Fido, but is the scientific name for an era of transition in northern Europe, when mankind shifted from the Old Stone Age into the more enlightened New Stone Age. This happened 7000 to 5000 B. C.

Scientists consider dogs the first animals domesticated by man.

Science News Letter, August 13, 1938

Rhubarb leaves should not be used as greens; they may cause poisoning.

ZERO TO EIGHTY

by Dr. E. F. Northrup

The Inventions and Reflections of an Eminent Scientist and Inventor of the Ajax Northrup High Frequency Induction Furnace—Life from 1920 to 2000 A. D.—Future Space Ships—Possibility of Interplanetary Travel—Electric Gun of Tomorrow.

ENDORSED by such Scientists as: G. W. PIERCE; WILLIS R. WHITNEY; HENRY NORRIS RUSSELL; COLIN G. FINK.

Illustrated, Cloth, \$3.00

SCIENTIFIC PUB. CO. Princeton, N. J.

*First Glances at New Books

Additional Reviews
On Page 112

Medicine

SYPHILIS, GONORRHEA AND THE PUBLIC HEALTH—Nels A. Nelson and Gladys L. Crain—*Macmillan*, 359 p., \$3. This book, written by two members of the Massachusetts Department of Public Health, is different from the many others on the same subject that have appeared recently. The facts about causes, spread and treatment are given, but nearly half the book is devoted to the problem of control of these diseases, the importance of gonorrhea is emphasized more than usual in this type of book, and considerable space is given to discussing the relation of venereal disease control to social hygiene. It is more technical but carries more straight-from-the-shoulder punch than most books on the same subject written for laymen and it is by no means too elementary for profitable reading by the professional groups.

Science News Letter, August 13, 1938

Medicine

REPORT OF THE HOSPITAL SURVEY FOR NEW YORK (Vol. III)—Prepared by Arthur W. Jones and Francisca K. Thomas—*United Hospital Fund*, 571 p., \$2. Investment, costs and income of institutions concerned with the care of the sick in the New York Metropolitan Area, showing that there are 814 agencies under 587 independent controls with a gross investment of \$714,845,000 (\$49.91 per capita) and annual expenditure of \$109,244,000 (\$10.17 per capita). Future needs through 1960 are estimated.

Science News Letter, August 13, 1938

Medicine—Autobiography

THE LIFE OF CHEVALIER JACKSON: AN AUTOBIOGRAPHY—*Macmillan*, 229 p., plates, \$3.50. Entertaining and historically useful facts about the Philadelphia surgeon whose name is almost synonymous with the art and science of bronchoscopy and esophagoscopy. More frequently this sort of record should be made.

Science News Letter, August 13, 1938

Architecture

BUNGALOWS: SEVENTY-THREE SMALL HOMES, BUNGALOWS AND STORY AND A HALF HOMES, PREPARED BY A NATIONAL ASSOCIATION OF ARCHITECTS, 80 p., illus., 50 c.; **TWO STORY HOMES: SEVENTY-THREE SMALL HOMES PREPARED BY A NATIONAL ASSOCIATION OF ARCHITECTS**—80 p., illus., 50c.—*The Architects' Small House Service Bur.* Each of these booklets contains a collection of 73 designs of houses ranging from three to six rooms.

An exterior view; floor plans and description of each is given; the prospective home-builder is advised to employ his local architect to carry out details.

Science News Letter, August 13, 1938

General Science

YOU'RE WRONG ABOUT THAT—AN ENCYCLOPEDIA OF FALLACIES—Bruce McCann—*Rodale Press*, 119 p., \$1. The book consists of several hundred popular beliefs or superstitions, arranged in alphabetical order, and debunked in a few terse sentences. The result is rather surprising because of the juxtaposition of unrelated items: split infinitives and insanity coming next to each other, for example, but the book seems accurate and may be useful.

Science News Letter, August 13, 1938

Economics

ACCIDENT AND HEALTH INSURANCE FROM THE VICTIM'S POINT OF VIEW—Bion H. Francis and Sumner Harwood—*Amer. Inst. for Economic Research*, 64 p., \$1. This seems to be an extremely helpful book which explains quite simply various features of health and accident insurance and points out advantages and disadvantages of the various types that are available.

Science News Letter, August 13, 1938

Economics

HEALTH INSURANCE, THE NEXT STEP IN SOCIAL SECURITY—Louis S. Reed—*Harper*, 281 p., \$3. The author states the case for health insurance and against the present system of medical practice.

Science News Letter, August 13, 1938

Physiology

PRINCIPLES OF HEALTHFUL LIVING—Edgar F. Van Buskirk—*Cordon Co.*, 386 p., \$2.25. This is a book on hygiene for college students. The aim is not only to teach the student some of the facts of human physiology but to make him realize how he can use his knowledge of these facts to protect his health both in college and afterwards.

Science News Letter, August 13, 1938

Physiology

MALNUTRITION: THE MEDICAL OCTOPUS—John Preston Sutherland—*Meador*, 368 p., \$3. The author is one of those who believes granulated sugar, white flour and meat should be banned from the human diet. His views are not in accordance with those held by the medical profession generally and by students of nutrition and physiology.

Science News Letter, August 13, 1938

General Science

AN ORIENTATION IN SCIENCE—Ten members of the University of Rochester faculty; C. W. Watkeys, ed.—*McGraw-Hill*, 560 p., illus., \$3.50. A little encyclopedia or compendium, up to the minute, covering astronomy, geology, chemistry, physics, biology, paleontology, physiology, bacteriology, psychology, mathematics, and scientific method. Although designed as a text, it will find its way to many reference shelves.

Science News Letter, August 13, 1938

Physiology

THE LIVING BODY: A TEXT IN HUMAN PHYSIOLOGY—Charles Herbert Best and Norman Burke Taylor—*Holt*, 563 p., illus., \$3.60. Designed for colleges and nursing schools and possibly for instruction of dental and agricultural students.

Science News Letter, August 13, 1938

Chemistry

INTRODUCTORY GENERAL CHEMISTRY (Rev. ed.)—S. R. Brinkley—*Macmillan*, 731 p., \$3.50. Revision of a comprehensive text prepared by Yale University's associate professor of chemistry for use in a beginner's course. The theoretical principles are not developed as an end in themselves but are presented in their relation to the interpretation of chemistry.

Science News Letter, August 13, 1938

Physics

NEGATIVE IONS—H. S. W. Massey—*Cambridge* (*Macmillan*), 105 p., \$1.75. For specialists in the field of electrolysis is this monograph by the well-known Belfast mathematical physicist.

Science News Letter, August 13, 1938

Physics

INTRODUCTION TO COLLEGE PHYSICS (2d ed.)—Clinton Maury Kilby—*Van Nostrand*, 398 p., \$3.25. A compact college textbook designed for college physics course carrying only two or three hours credit. Such courses usually use either an advanced high school text or a large complete college text with numerous omissions. Prof. Kilby's book is designed to give a better approach to a concise course in a book written from the college point of view.

Science News Letter, August 13, 1938

Sociology

SOCIAL LIFE AND PERSONALITY—Emory S. Bogardus and Robert H. Lewis—*Silver, Burdett*, 581 p., \$1.80. See page 106.

Science News Letter, August 13, 1938

*First Glances at New Books

Additional Reviews
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Physiology

MIDDLE AGE IS WHAT YOU MAKE IT—Boris Sokoloff—*Greystone Press*, 204 p., \$1.75. The author believes that if beginning at the thirtieth birthday, men and women would work out in consultation with their physicians a system of living suited to the individual needs of each, middle age could be made much healthier and younger than it often is now. In this book he explains why he thinks so, gives some facts about health conditions in middle age, and points out dangers he thinks need specially to be guarded against.

Science News Letter, August 13, 1938

Mathematics

COSMOLOGICAL THEORY—G. C. McVittie—*Chemical Pub. Co. of N. Y.*, 103 p., \$1.25. London University's Doctor McVittie reviews the various theories and mathematics relating to the structure of the universe. Delving deep into the highly technical mathematics of such problems, this book will delight the expert in the field and probably be over the heads of those seeking a popularly written account of how the universe came to be as it is.

Science News Letter, August 13, 1938

Metallurgy

THE STRUCTURE OF STEEL SIMPLY EXPLAINED—Eric N. Simons and Edwin Gregory—*Prentice-Hall*, 116 p., illus., \$2. A book written for engineers and all other persons who are engaged in industries which necessitate the use of steel. It is written for the intelligent layman who may be trained in a specific field of science but who is lacking in the intimate knowledge of steel field production, its structure, and its best uses.

Science News Letter, August 13, 1938

Geography

THE SCENIC RESOURCES OF THE TENNESSEE VALLEY: A DESCRIPTIVE AND PICTORIAL INVENTORY—Tennessee Valley Authority—*Govt. Print. Off.*, 222 p., illus., \$1. A summary of the scenic beauties of the Tennessee Valley illustrated with many maps and photographs.

Science News Letter, August 13, 1938

Archaeology

AN ARCHAEOLOGICAL SURVEY OF THE NORRIS BASIN IN EASTERN TENNESSEE—William S. Webb—*Govt. Print. Off.*, 398 p., illus., \$1. Before the waters of Norris Dam were permitted to fill the lake, the 23 known archaeological sites, comprising caves, mounds, and rock shelters,

were thoroughly explored by scientists working under the auspices of the Bureau of American Ethnology, Smithsonian Institution of Washington, employing CWA and FERA labor, with co-operation from the National Research Council, the Universities of Tennessee, Kentucky, and Michigan, and other organizations. Results of these investigations are now available in this new publication.

Science News Letter, August 13, 1938

Engineering

ENGINEERING TERMINOLOGY—Victor J. Brown and Delmar G. Runner—*Gillette*, 310 p., \$3.50. A glossary of terms in common usage in engineering practices. The words are arranged alphabetically and each has a brief and concise definition or illustration of its use.

Science News Letter, August 13, 1938

Mineralogy

QUARTZ FAMILY MINERALS—H. C. Dake, Frank L. Fleener and Ben Hur Wilson—*Whittlesey House*, 304 p., illus., \$2.50. Among the growing hobbies of the layman is that of collecting minerals. This book should be a bible for all such persons.

Science News Letter, August 13, 1938

Geology

GEOLIC MAP OF CALIFORNIA—*Calif. Div. of Mines*, 6 sheets, \$4. Seven-foot-square map of great completeness, made with ten color plates, showing culture, streams, roads and some 80 geological units, with smaller maps showing submarine contours, source data, mineral locations, rainfall, glacial features, and an interesting geologic time scale based on the latest data from radioactivity.

Science News Letter, August 13, 1938

Seismology

PRACTICAL SEISMOLOGY AND SEISMIC PROSPECTING—L. D. Leet—*Appleton*, 430 p., \$6. An excellent introduction to the science of seismology by the scientist in charge of Harvard's seismological station. Dr. Leet presents a most comprehensive study of earthquakes and seismic phenomena written in a manner which requires no technical knowledge beyond elementary mathematics. An excellent reference work.

Science News Letter, August 13, 1938

Sociology

THE PROBLEMS OF A CHANGING POPULATION—National Resources Committee—*Govt. Print. Off.*, 306 p., charts, 75 c. See page 89, SNL, Aug. 6.

Science News Letter, August 13, 1938

Astronomy

STARCRAFT—William H. Barton, Jr. and Joseph Maron Joseph—*Whittlesey*, 228 p., illus., \$2.50. Star legend and amateur astronomy for the layman by an expert of the Hayden Planetarium in New York City and the head of the Science Department at Smedley Junior High School, Chester, Pennsylvania.

Science News Letter, August 13, 1938

Astronomy

ASTRONOMY: A TEXTBOOK FOR UNIVERSITY AND COLLEGE STUDENTS (3rd ed)—Robert H. Baker—*Van Nostrand*, 527 p., illus., \$3.75. Prof. Baker's popular textbook on astronomy has now entered its third edition and has amply demonstrated its worth. Amongst the new features are improved star maps, a list of questions at the end of each chapter, and reproductions of very recent astronomical photographs. The book is completely up-to-date.

Science News Letter, August 13, 1938

Education

A PREVIEW TO COLLEGE AND LIFE—Carl E. Seashore—*Univ. of Iowa*, 78 p., cloth 75 c, paper 50 c. Good advice to college students by an eminent psychologist.

Science News Letter, August 13, 1938

Chemistry

TRANSACTIONS OF THE INSTITUTION OF CHEMICAL ENGINEERS, Vol. 15, 1937—*Institution of Chemical Engineers, London*, 260 p., 21 s. A publication in permanent book form of the technical papers presented before the last meeting of the I. C. E.

Science News Letter, August 13, 1938

Chemistry

INTRODUCTORY QUALITATIVE ANALYSIS (Rev. ed.)—Warren C. Vosburgh—*Macmillan*, 222 p., \$2.25. Qualitative analysis as taught at Duke University. It is adapted for a one semester course. The chief emphasis is on instruction in the chemical principles and the scientific method, rather than on the teaching of an immediately practical art.

Science News Letter, August 13, 1938

Engineering

PETROLEUM DEVELOPMENT AND TECHNOLOGY, 1938—*American Institute of Mining and Metallurgical Engineers*, 744 p., \$5. The printing, in book form, of the last three technical meetings of the A. I. M. M. E., bringing the technical papers up to February of 1938.

Science News Letter, August 13, 1938